EAC Decision on Request for Interpretation 2007-02
2002 Voting Systems Standards, Vol. 1, Section 4.2.5

Date:

May 14, 2007

Question:

Are variable names that differ by only a single character acceptable when they enhance the readability and intelligibility of the program? In particular when the names chosen are consistent and in agreement with the standard names as used by the operating system, industry accepted standards, or publicly documented interfaces or algorithms?

Facts:

The issue is one of maintaining consistency with industry standard naming conventions so reviewers and developers can better understand the code. The following examples identify the areas of concern:

1) Standard API's, eg, printf(), sprintf(), fprintf(), open(), fopen(), etc.
2) Standard accepted programming conventions such as get/set, as in gettime(), settime().
3) Multiple instances or occurrences of similar items, such as COM1, COM2, SIO1, SIO2, and their related functions, e.g. sio0Open(), sio1Open().
4) Reference to publicly documented hardware (chip) interfaces such as registers STN_R_FIFO and STN_W_FIFO , for Read and Write, or values such as TPS2206_VCC_3V and TPS2206_VCC_5V , for 3 Volt and 5 Volt settings.
5) Reference to industry accepted and known variables, such as X and Y for coordinates.
6) Reference to variables defined in algorithms, such as the variables A,B,C,D, etc defined in the SHA1 algorithm.
7) Reference to the collection, i.e. plural, of an object such as Race for the singular and Races for the plural.

Section of Standards or Guidelines:

2002 Voting Systems Standards, Volume 1, Section 4.2.5

Conclusion:

Suggested Interpretation - Names that differ by only a single character, that enhance the readability and intelligibility of the program, accurately represent their use, and increase consistency between code and documentation, are acceptable under the provisions of Volume 1, Section 4.2.5.

The EAC agrees with the interpretation suggested in this RFI. The purpose of the standard is to enhance the readability and intelligibility of the code and the examples provided show numerous conditions where such variations are used with little apparent problem and, in some cases, are actually very easy to recognize. The interpretation allows for a practical application and use of industry accepted standards while still permitting egregious instances of misused names to be challenged by the laboratory.